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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/768,201
Filing Date: January 30, 2004
Appellant(s): MILLER ET AL.

James O. Skarsten
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 1/22/2009 appealing from the Office action mailed 8/25/2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

2004/0064428	Larkin et al.	4-2004
2004/0122926	Moore et al.	6-2004
2004/0220910	Zang et al.	11-2004

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 25-34 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 25 is drawn towards a computer program product in a computer readable medium including computer program code. The computer readable medium defined in the specification is not in one of the statutory categories. The specification provides no explicit and deliberate definition of the computer readable medium.

Claims 26-34, which are dependent on claim 25 do not add any explicit and deliberate definition of the computer readable medium to the claim and thus are rejected for the same.

Claims 1, 4-7, 9-19, 21-31 and 33-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larkin et al. (hereinafter Larkin)(U.S. Pub. No. 2004/0064428 A1) in view of Moore et al. (hereinafter Moore)(U.S. Pub. No. 2004/0122926 A1).

Regarding claims 1, 13 and 25, Larkin teaches as follows:

A method for dynamically selecting functionally equivalent Web services through a single autonomic proxy (equivalent to aggregation and review engine 110 in figure 1, see, e.g., page 2, paragraph [0028])(a method and system for collecting and reviewing data related to Web services receives service criteria from a service requester, selects candidate services that match the service criteria, invokes the selected candidate services, and aggregates results provided by the candidate services, see, e.g., abstract) comprising:

receiving a client request (service requester 108 in figure 1) to locate a Web service at the autonomic proxy (aggregation and review engine 110 in figure 1, hereinafter engine)(see, e.g., page 2, paragraph [0029], lines 1-2);

querying a policy discovery mechanism (equivalent to service registries or UDDI 130 in figure 1, see, e.g., page 2, paragraph [0031] and [0032]) based on the client request (see, e.g., page 2, paragraph [0029], lines 3-8); and

locating multiple Web services candidates (equivalent to one or more service providers 160 in figure 1) to service the client request, wherein each Web service candidate is functionally equivalent to the other Web service candidates (invocation of services from one or more service providers, see, e.g., page 2, paragraph [0029], lines 3-8).

Larkin teaches all limitations of claim except for determining a Web service candidate based on the Web service candidate business policy.

Moore teaches as follows:

A system and method for automating the selection of a Web service based on reputation information (interpreted as applicant's business policy)(see, e.g., page 1, paragraph [0008]);

the client provides contract requirements and reputation requirements, such as with the query. The search engine crawls the contract data to determine which Web services meet the basic operational requirements of the client, and crawls the reputation data to determine which of those contract-meeting Web services have the best reputations (see, e.g., page 1, paragraph [0009]);

selecting candidate services (step 220 in figure 2) and invoking (equivalent to sending a message) candidate services (step 230 in figure 2)(see, e.g., page 3, paragraphs [0042] and [0043] respectively);

selecting a Web service (selected resource 306 in figure 3) from a group of Web service candidates (list of corresponding resources 304 in figure 3)(selection mechanism 302 in figure 3 selects a resource from a list and narrow the list to a selected resource based on reputation data 308, see, e.g., page 4, paragraph [0034]); and

the Web services search engine (406 in figure 4) performs tasks to confirm the availability of the selected Web server (the Web services search engine performs a number of task to communicate with the top-ranked Web service servers to establish

that they are still available to provide the requested service and to communicate with the auditor to confirm that the reputation data for each top-ranked Web service server is still correct, see, e.g., page 7, paragraph [0053]).

Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to combine Larkin to include determining a Web service among multiple available Web services based on reputation information as taught by Moore in order to effectively select a Web service corresponding to the client's exact requirements.

It would have been also obvious for one of ordinary skill in the art at the time of the invention to modify Larkin to include the Web service search engine for confirming the availability of the selected Web service servers as taught by Moore in order to select a Web service provider which is actually available in real-time when the decision made based on the reputation information.

Regarding claims 4, 16 and 28, Larkin teaches as follows:

Querying the policy discovery mechanism (registries, UDDI 130 in figure 1) includes obtaining a WSDL Web service interface description (service definition) for the requested Web service (the candidate selection module 170 provides the directory queries to conduct searches within the registries (UDDI 130) and provide a service list 172 to the dispatch module 180 and the service list comprises service definition object which defines the interface to the service providers, see, e.g., page 3, paragraph [0036]).

Regarding claims 5, 17 and 29, Larkin teaches as follows:

Querying the policy discovery mechanism includes locating a wsdlSpec tModel (defined in the applicant's specification page 16 line 28 to page 17, line 2 as the technical specifications required to interact with the Web service endpoint in based on the WSDL Web service interface description for the requested Web service)(the service definition 140 in figure 1 contains detailed information necessary to exchange information electronically between a service requestor and a service provider, see, e.g., page 3, paragraph [0033]. The service registries 130 contain service descriptions that describe the functionality of available Web services along with general information such as Web service names, locations, and service types, see, e.g., e.g., page 3, paragraph [0031]).

Regarding claims 6, 7, 18, 19, 30 and 31, Larkin teaches all the limitations of claim as explained above per claim 1 except for determining based on the business criteria of the Web service candidate.

Moore teaches as follows:

A system and method for automating the selection of a Web service based on reputation information (interpreted as applicant's business policy) comprises a technically-oriented and business-oriented behavioral attributes (see, e.g., page 1, paragraph [0008], lines 1-6);

the business-oriented behavioral attributes (equivalent to applicant's business criteria) includes cost data (see, e.g., page 1, paragraph [0008], lines 9-16); and

the client provides contract requirements and reputation requirements, such as with the query. The search engine crawls the contract data to determine which Web

services meet the basic operational requirements of the client, and crawls the reputation data to determine which of those contract-meeting Web services have the best reputations (see, e.g., page 1, paragraph [0009]).

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine Larkin to include determining a Web service based on reputation information specified with cost data as taught by Moore in order to effectively select a Web service among multiple available Web services corresponding to the client's exact requirements.

Regarding claims 9-11, 21-23 and 33-35, Larkin teaches as follows:

Receiving and validating service criteria (equivalent to applicant's metadata) received from the service requester (see, e.g., page 3, paragraph [0041]).

Moore teaches as follows:

A system and method for automating the selection of a Web service based on reputation information (interpreted as applicant's business policy) comprises a technically-oriented and business-oriented behavioral attributes (see, e.g., page 1, paragraph [0008], lines 1-6); and

the technically-oriented behavioral attributes includes Web service responsiveness, Web service latency and Web service uptime (see, e.g., page 1, paragraph [0008], lines 6-9).

It would have been obvious for one of ordinary skill in the art at the time of the invention to modify Larkin to include response time information as the service

requester's criteria as taught by Moore in order to effectively select a Web service corresponding to the client's response time related requirement.

Regarding claims 12, 24 and 36, Moore teaches as follows:

A system and method for automating the selection of a Web service based on reputation information (interpreted as applicant's business policy) comprises a technically-oriented and business-oriented behavioral attributes (see, e.g., page 1, paragraph [0008]).

It would have been obvious for one of ordinary skill in the art at the time of the invention to modify Moore to include the well-known Web Service Policy Framework as the reputation information.

Regarding claims 14 and 26, Larkin teaches as follows:

The policy discovery mechanism is UDDI (equivalent to service registries or UDDI 130 in figure 1, see, e.g., page 2, paragraph [0031] and [0032]).

Regarding claims 15 and 27, Larkin teaches as follows:

The Web service is described using WSDL (equivalent to service definition or WSDL source 140 in figure 1)(the service definition contains detailed information of Web service, see, e.g., page 3, paragraph [0033] and [0034]).

Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larkin et al. (hereinafter Larkin)(U.S. Pub. No. 2004/0064428 A1) in view of Moore et al. (hereinafter Moore)(U.S. Pub. No. 2004/0122926 A1), and further in view of Zang et al. (hereinafter Zang)(U.S. Pub. No. 2004/0220910 A1).

Larkin in view of Moore teach all the limitation as presented above except for measuring the response times of each Web service and selecting one Web service based on the measured response time.

Zang teaches as follows:

A system and method for capturing a plurality of business requirements using a Business Process Outsourcing Language (BPOL), an XML representation for expressing business process flow rules, preferences, business rules and event-action mappings as well as service links, to automate the process of generating business processes for use with Web services. BPOL is used to dynamically construct a search script for an advanced Web services discovery engine to find Web services from both UDDI registries and Web services Inspection Language (WSIL) documents and then create a qualified service list. Then a service selection problem is mapped into a solution space [0,1] for use by an optimization algorithm that performs second level service selection of the best set of services based on the requirements (see, e.g., abstract);

the QoS parameters of Web services are used to measure the quality of the Web services clusters for business process composition. Typically, the QoS parameters of a Web service are: accessibility (measured by Accessibility Agent 521), response time (measured by Response Time Agent 522), security (measured by Security Checking Agent 523), availability, and so forth (see, e.g., page 9, paragraph [0170] and figure 5); and

the Service Selection Agent 510 communicates with QoS Agents 520 or other

requirement evaluation agents 525, which will use Web services Invoker 540, a proxy program that invokes Web services for a client requester, to automatically invoke Web services 530 to check the capability of that Web service or fetch data from Web Service logging or caching database 535 to get the estimated quality. The service selection agent tool 510, supported by an optimization algorithm 515, can get the response time by recording the invocation request time and result return time, for example. In the meantime, the accessibility can be measured by sending an invocation request several times during a specified period, for example 24 hours (see, e.g., page 9, paragraph [0170] and figure 5).

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine Larkin in view of Moore to include measuring a response time and selecting a Web service based on the measured response time as taught by Zang in order to efficiently select a Web service based on the QoS parameters of the Web service candidates.

(10) Response to Argument

A. Appellants' arguments and Examiner's responses regarding claim 1 are as follows:

I) Appellants' argument:

It is readily apparent that Moore, in view of the above principle emphasized thereby, teaches away from use of an autonomic proxy, to select a Web service from a

group of Web service candidates, as required by Feature (1) of Claim 1. The recitation of Feature (1) is thus clearly incompatible with the explicit teachings of Moore, such as at paragraph [0034] thereof, which contrarily require use of two selection mechanisms, in order to achieve the intended results of Moore.

Examiner's response:

Moore teaches as follows:

The search engine may return only the top-ranked provider, however the client may prefer to select one from a lost of several top-ranked ones (see, e.g., page 7, paragraph [0054]).

Also it would have been obvious for one of ordinary skill in the art at the time of the invention to modify Moore with Larkin to implement the selection mechanism, implemented at the client to be narrowed to one web service, at the search engine together because the selection mechanism can be executed in any computer system (see, e.g., page 4, paragraph [0034]).

II) Appellants' argument:

Feature (1) of Claim 1 additionally distinguishes over Moore in reciting the selection of a first Web service based on the business policy of the first Web service. In contrast, Moore stresses that a Web service is to be selected based on its reputation. It is considered that a business policy is inherently different from a reputation, and is therefore not equivalent thereto.

Examiner's response:

The business policy is interpreted as reputation information because the appellant's specification does not provide any specific definition.

Claims are to be given their broadest reasonable interpretation during prosecution, and the scope of a claim cannot be narrowed by reading disclosed limitations into the claim. See In re Morris, 127 F.3d 1048, 1054, 44 USPQ2D 1023, 1027 (Fed. Cir. 1997); In re Zletz, 893 F.2d 319, 321, 13 USPQ2D 1320, 1322 (Fed. Cir. 1989); In re Prater, 415 F.2d 1393, 1404, 162 USPQ 541,550 (CCPA 1969). In addition, the law of anticipation does not require that a reference "teach" what an appellant's disclosure teaches. Assuming that reference is properly "prior art,'" it is only necessary that the claims "read on" something disclosed in the reference, i.e., all limitations of the claim are found in the reference, or "fully met" by it. Kalman v. Kimberly-Clark Corp., 713 F.2d 760, 772, 218 USPQ 781,789 (Fed. Cir. 1983).

Moore's reputation information is used to determine a web service meets the basic operational requirement of the client (see, e.g., page 1, paragraph [0009]).

III) Appellants' argument:

In regard to Moore, paragraph [0053] thereof discloses performing tasks which include establishing that top-ranked web service servers are still available to provide a requested service. However, this paragraph is very unclear, at best, in regard to what is to be done if a server or service is not available. In any event, such paragraph does not teach operating an autonomic proxy to dynamically select a second web service from a group of candidates, based on the business policy. Thus, Moore does not disclose

Feature (2) of Claim 1. As discussed above, the reputation data of Moore, used therein for service selections, is not considered equivalent to the business policy recited by Appellants' Claim 1.

Examiner's response:

Moore teaches as follows:

The web service search engine builds the ranked list while the listed web service servers are available to provide the requested service. Therefore Moore resolves the same problem as appellant claimed. The search engine inherently puts the one is available to provide the requested service in the ranked list, if not available, searching for the other server which is available to provide the requested service to make the ranked list (see, e.g., page 7, paragraph [0053]).

B. Appellants' arguments and Examiner's responses regarding claims 2 and 3 are as follows:

I) Appellants' argument:

Claim 2 is additionally considered to distinguish over the art in reciting that the autonomic proxy is disposed to measure response times at each Web service, by sending messages to each of the Web service candidates. None of the cited references, or any combination thereof, discloses this feature. For example, the Zang reference, such as at paragraph [0170], discloses that response time is measured by a Response Time Agent 522, and not by an autonomic proxy as recited by Claim 2.

Examiner's response:

Zang teaches the deficiency of measuring the response times of each Web service and selecting one Web service based on the measured response time as follows:

Server selection agent 510 in figure 5 communicates with QoS agent to invoke Web services for a client request;

QoS parameters of Web services are used to measure the quality of the Web service clusters for business process composition and one of the QoS parameters is response time;

The response time agent 522 in figure 5 measures response time for each Web services (see, e.g., page 9, paragraph [0170]).

Therefore, Larkin in view of Moore and Zang teach of measuring the response times of each Web service and invoking Web service based on the QoS parameter, response time.

Also it would have been obvious for one of ordinary skill in the art at the time of the invention to modify Zang with Larkin in view of Moore to implement the response time agent at the applicant's autonomic proxy.

II) Appellants' argument:

Claim 3 is additionally considered to distinguish over the art in reciting that the autonomic proxy dynamically selects the Web service that is responding most quickly, according to its business policy, to be the first Web service. None of the cited

references, or any combination thereof, discloses this feature. For example, Zang fails to disclose the use of business policy to select the Web service that is responding most quickly.

Examiner's response:

Zang teaches as follows:

The requirements validation (interpreted as applicant's business policy) comprises one or multiple indicators such as QoS (quality), cost, execution time or others (see, e.g., page 9, paragraph [0170]). Therefore, Zang' system selects the Web service based on the QoS parameters, such as, the response time.

C. Appellants' arguments and Examiner's responses regarding claims 25-31 and 33-34 are as follows:

I) Appellants' argument:

Appellants note that their specification, such as at page 6, lines 16-18 and Figure 3, discloses a data processing system in which their invention may be implemented. Figure 3 includes a hard disk drive 326, a CD-ROM 330, a main memory 304, additional memory 324 and a tape 328. Each of these components is considered to be a type of computer readable medium that is very well known to those of skill in the art. Moreover, the specification at page 22, lines 17-19 states explicitly that computer readable media includes such things as a floppy disk, a hard disk drive, a RAM, CD-ROMs and DVD-ROMs. Accordingly, the specification provides clear support for the computer readable medium recited by Claim 25. The rejection of Claim 25 under 35 U.S.C. § 101, as well

as of Claims 26- 31 and 33-34 that respectively depend from Claim 25, is thereby overcome.

Examiner's response:

Appellant's specification, such as at page 22, lines 20-26, discloses the computer readable media also include transmission-type media, such as, digital and analog communications links, wired or wireless communication links using transmission forms, such as, for example, radio frequency and light wave transmissions. Therefore, claim 35 is drawn toward a computer program product in an executable computer readable medium defined in the specification, such as, a transmission-type media, is not in one of the statutory categories and, as such, fails to establish a statutory category of invention.

Claims 26-31 and 33-34 are rejected for similar reasons as stated above.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Jeong S Park/

Examiner, Art Unit 2454

April 15, 2009

/Nathan J. Flynn/

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